

## REMARKS/ARGUMENTS

This is intended as a full and complete response to the Office Action dated August 13, 2009, having a shortened statutory period for response set to expire on November 13, 2009. Please reconsider the claims pending in the application for reasons discussed below. Claims 1-55 are pending in the application and remain pending following entry of this response.

### Claim Rejections - 35 U.S.C. § 102

Claims 1-3, 5-6, 10, 15, 17, 19, 21, 24-25, 29, 32-33, 35-36, 40-42 and 45-52 are rejected under 35 U.S.C. § 102(e) as being allegedly anticipated by *Kishigami et al.* (U.S. Patent No. 6,642,888, hereinafter, "*Kishigami*"). Applicants respectfully traverse this rejection.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).

In the present case, *Kishigami* fails to teach each and every element as set forth in the claims. For example, *Kishigami* fails to teach "selecting at least one different combination of scalars, each combination including at least one scalar for at least one row of the base matrix, one scalar per row, each scalar being a real or complex value" and "forming at least one steering matrix by multiplying a base matrix with the at least one different combination of scalars, wherein one steering matrix is formed by each combination of scalars" as recited in claim 1.

In the Office Action, the Examiner refers to Equation 12 of *Kishigami* and corresponding description as teaching "selecting at least one different combination of scalars, each combination including at least one scalar for at least one row of the base matrix, one scalar per row, and each scalar being a real or complex value." The Examiner refers to element  $a(\theta)$  in Equation 12 as corresponding to the "combination of scalars" recited in the claim and states that col. 4, lines 50-51 states that " $\theta$  can be selected for a specific antenna." However, col. 4, lines 50-51 only teach

that " $\|x\|$  is the norm of vector  $x$ , and  $a(\theta)$  is a normalized steering vector of the array antenna." In fact, the only "selecting" described in *Kishigami* is with reference to selecting complex digital signals or selecting antennas.

The Examiner also submits that Equation 12 discloses "forming at least one steering matrix by multiplying a base matrix with the at least one different combination of scalars, wherein one steering matrix is formed by each combination of scalars." However, the description of Equation 12, in col. 6, lines 23-25, teaches only that a "steering vector can be converted into a real vector using unitary matrix  $Q_M$ " as written in Equation 12. To be clear, this does not teach "forming at least one steering matrix by multiplying a base matrix with the at least one different combination of scalars" at all, but rather teaches "converting a steering vector into a real vector" which is clearly a different operation. In fact, there is no teaching in *Kishigami* of forming (generating or producing) a steering matrix, at all.

As *Kishigami* fails to teach forming at least one steering matrix by multiplying a base matrix with at least one different combination of scalars, Applicants submit claim 1 and its dependents are allowable over the art of record. Claims 13, 17, 21, 34, 39, 42, 47, 50, and 55 recite similar limitations as claim 1, which are not taught in *Kishigami*. Accordingly, Applicants submit these claims and their dependents are also allowable over the art of record and request withdrawal of this rejection.

#### Claim Rejections - 35 U.S.C. § 103

Claims 12, 53-55 are rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over *Kishigami*. Claim 4 is rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over *Kishigami* in view of Craw ("The Fourier Matrix," December 2003 <http://www.maths.abdn.ac.uk/~igc/tch/eg1006/notes/node123.html>). Claims 11 and 13 are rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over *Kishigami*. Claims 22-23 are rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over *Kishigami* in view of *Khatri* (U.S. Patent No. 7,020,490). Claims 42 and 45-52 are rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over *Kishigami* in view of *Khayrallah et al.* (U.S. Patent No. 6,711,124, hereinafter, "*Khayrallah*"). Claims 43-44 are rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over *Kishigami* in view of *Khayrallah* in view of *Khatri*.

Applicants respectfully submit, however, that each of these claims includes limitations discussed above, which are not taught in *Kishigami*. Applicants further submit that neither of these additional references overcomes the shortcomings in the teachings of *Kishigami* discussed above. Accordingly, Applicants submit these claims are also allowable over the art of record and request withdrawal of these rejections.

Therefore, the claims are believed to be allowable over the art of record, and allowance of the claims is respectfully requested.

### CONCLUSION

Therefore, for at least the reasons presented above with respect to all of the pending claims subsequent to entry of this response, Applicants assert that all claims are patentably distinct from all of the art of record. All objections and rejections having been addressed, it is respectfully submitted that this application is in condition for allowance and a Notice to that effect is earnestly solicited. If any points remain in issue that the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

**Charge Statement:** For this application, the Commissioner is hereby authorized to charge any required fees or credit any overpayment to Deposit Account 17-0026.

Respectfully submitted,  
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